SECRET

The Files - AD-103, T.O. 8 15 June 1959

25X1A9A
[redacted]

Conference Report - AS-6 Power Supply

1. On 8 June 1959 a conference was held at the Atomic Energy Commission, Germantown, Maryland, to discuss the status of the radioisotope power supply which AEC is furnishing for the AS-6 data transmission system. Participating in this conference were:

Lt. Col. Catheren M. Anderson - Aircraft Reactor Branch, AEC
Major George Ogburn - Aircraft Reactor Branch, AEC
Captain Robert Carpenter - Aircraft Reactor Branch, AEC
25X1A5A1 [redacted]
25X1A9A [redacted] OC-E/R&D-EP

25X1A5A1 2. [redacted] presented a report of the progress of the program to date and outlined his plans for the remaining work. It is now clear that the power supply required by us on August 30, 1959 will have to be fueled with plutonium 238 since the crash program at Oak Ridge to refine promethium will not be completed in time. A promethium-fueled power supply could be available by 15 September with a minimum of testing and by 15 October with a full scale test program, but not by 30 August. The implications of using plutonium are that the AS-6 power supply will furnish power for the next 80 years, there will be no radiation hazard whatever, and therefore no shielding beyond the normal power supply case will be required. The highest order of priority within AEC has been brought to bear to release plutonium from the weapons program for our purposes.

25X1A5A1 3. The thermoelectric converters being supplied by the [redacted] will be delivered the week of 15 June 1959 and this portion of the program seems to be successfully completed. Shock testing of the original electrically heated power supply revealed that the delicate thermocouple elements which were the subject of so much concern a few months ago successfully survived a rugged environmental test including a two-foot drop to a concrete floor. The first failure in the system occurred in the high temperature bond at the end of the thermocouples. The failure was discussed with [redacted] and a slight change is being made in the bonding technique. If this type failure occurs again in actual service, [redacted] believes the bond will reseal itself and resume battery charging because of the continuous heat from the radioisotope.

25X1A5A1

SECRET

4. [redacted] described in detail the revised packaging layout for the final power supply and AEC gave its blessing to the change. Under this arrangement the battery and battery charger will be placed in one hermetically sealed box measuring approximately 12 x 12 x 8 inches and the high voltage converters and regulators will be placed in another hermetically sealed box measuring approximately 12 x 4 x 8 inches which will be bolted to the battery box. The entire power supply will then measure approximately 12 x 16 x 8 inches and will weigh 29 lbs., plus the weight of the converters, or 34 lbs. if [redacted] is able to obtain converters within its 5-pound weight limit. It was agreed that [redacted] would travel to [redacted] during the week of 15 June to discuss the exact layout of the converter box and to determine the design of the interconnecting harness.

5. [redacted] reported that its evaluation of batteries for the AS-6 is nearly complete and that a comprehensive report will be prepared. The smaller power supply described in the preceding paragraph has been made possible through the advent of a 5 ampere-hour battery in a 3 ampere-hour case recently announced by the Nicad Company. [redacted] has been testing these batteries intensively and has determined that they are more than adequate for our requirements.

6. The writer recounted the last-minute difficulties which arose when the polonium-fueled test power supply was due to be delivered to us in early May. Technicalities regarding air shipment and a Bureau of Explosives license were encountered and resolved only after considerable confusion. The AEC was asked to investigate whatever problems are contingent upon the delivery of the plutonium power supply and insofar as possible resolve them prior to delivery. [redacted] requested that Price-Anderson Coverage (which indemnifies a contractor against catastrophic product liability damages) be granted his company on this program. Col. Anderson agreed to investigate and "get [redacted] off the hook" as far as any possible accident with the power supply was concerned. The writer explained to Col. Anderson that it would be impossible for us, of course, to abide by normal ICC and Bureau of Explosives regulations regarding shipment or radioisotopes when the final unit was to be taken to the field. Col. Anderson replied that he was sure we would not be held to the letter of the law under such circumstances.

7. Col. Anderson concluded the conference with a request to the writer that a letter from this Agency be forwarded to the chairman of AEC acknowledging receipt of the test prototype and describing briefly the results of our test on the prototype, i.e. that it performed successfully.

[redacted]

cc: R+D Subject File
R+D Lab
AEC [illegible] File
Monthly (2)
EP Chrono

00-E/R+D-EP/MJS:pjb (15 June 59)